

REMARKS

Claims 1-19 are pending. Claims 15-18 have been withdrawn from consideration pursuant to the previous restriction requirement. Applicants have carefully considered the December 20, 2005 Office Action, and the comments that follow are presented in a bona fide effort to address all issues raised in that Action and thereby place this case in condition for allowance. Entry of the present Request for Reconsideration is respectfully solicited. It is believed that this response places this case in condition for allowance. Hence, prompt favorable reconsideration of this case is solicited.

Claims 1-14 and 19 were rejected under 35 U.S.C. § 102(e) as being anticipated over Japan fine Ceramics Center (JP P2002-075171 A). Applicants respectfully traverse.

Applicants would stress that the factual determination of lack of novelty under 35 U.S.C. § 102 requires the identical disclosure in a single reference of each element of a claimed invention, such that the identically claimed invention is placed into the recognized possession of one having ordinary skill in the art. *Dayco Prods., Inc. v. Total Containment, Inc.*, 329 F.3d 1358, 66 USPQ2d 1801 (Fed. Cir. 2003); *Crown Operations International Ltd. v. Solutia Inc.*, 289 F.3d 1367, 62 USPQ2d 1917 (Fed. Cir. 2002). There are significant differences between the claimed invention and the electron emission element disclosed by JP 2002-075171 that would preclude the factual determination that JP 2002-075171 identically describes the claimed inventions within the meaning of 35 U.S.C. § 102.

Independent claim 1 recites:

A microfabricated diamond element wherein at least one columnar body of a quadrangular cross section comprising diamond is formed on a substrate, and wherein lengths of a long side and a short side in the cross section of the columnar body satisfy relational expressions represented by Formulae (1) and (2) below;

$$C_1 = 2a\sqrt{1+k^2} \dots (1)$$

$$n\lambda \approx C_1 \dots (2)$$

C_1 : a distance [nm] of a lap in a situation where light generated inside the columnar body goes around on a specific circuit while being reflected on side faces of the columnar body,

n: an arbitrary positive integer,

λ : an emission peak wavelength [nm] of the diamond,

a: the length of the long side [nm], and

k: a ratio of the length of the short side to the length of the long side.

Independent claim 2 recites:

A microfabricated diamond element wherein at least one columnar body of a substantially regularly hexagonal cross section comprising diamond is formed on a substrate, and

wherein lengths of sides in the cross section of the columnar body satisfy relational expressions represented by Formulae (3) and (4) below;

$$C_2 = 3\sqrt{3}b \dots (3)$$

$$n\lambda \approx C_2 \dots (4)$$

C_2 : a distance [nm] of a lap in a situation where light generated inside the columnar body goes around on a specific circuit while being reflected on side faces of the columnar body,

n: an arbitrary positive integer,

λ : an emission peak wavelength [nm] of the diamond, and

b: the length of the sides [nm].

Independent claim 3 recites:

A microfabricated diamond element wherein at least one columnar body of a circular cross section comprising diamond is formed on a substrate, and

wherein when a length of a radius in the cross section of the columnar body is r [nm], and a specific circuit, on which light generated inside the columnar body goes around while being reflected on a side face of the columnar body, is represented by a regular polygon in which a distance from a center to corners thereof is r [nm], the perimeter C_3 [nm] of the regular polygon satisfies relational expressions represented by Formulae (5) and (6) below:

$$3\sqrt{3}r < C_3 < 2\pi r \dots (5)$$

$$n\lambda \approx C_3 \dots (6)$$

n: an arbitrary positive integer, and

λ : an emission peak wavelength [nm] of the diamond.

Independent claim 19 recites:

A microfabricated diamond element wherein at least one columnar body of a quadrangular cross section comprising diamond and having a maximum diameter of not more than 50 nm is formed on a substrate, and

wherein lengths of a long side and a short side in the cross section of the columnar body satisfy relational expressions represented by Formulae (9) and (10) below;

$$n\gamma \approx 2a \cdots (9)$$

$$m\gamma \approx 2ka \cdots (10)$$

n: an arbitrary positive integer,

m: an arbitrary positive integer,

γ : the de Broglie wavelength [nm] of electrons or holes in the diamond,

a: the length of the long side [nm], and

k: a ratio of the length of the short side to the length of the long side.

As described in the present specification, the present invention relates to microfabricated diamond elements used in light emitting devices. The luminous efficiencies of conventional microfabricated diamond elements used in the conventional light emitting devices were insufficient. As further described in the specification, it is an object of the present invention to provide a microfabricated diamond element of shape capable of increasing the luminous efficiency.

The present invention has a characteristic feature in that the light is emitted/reflected from the side faces of the columnar body, and the sectional shape of the columnar body meets the condition defined by the claims so as to enhance the emission efficiency of the light in the peak wavelength.

JP2002-075171, an invention concerning an electron emission element, does not disclose the condition of the columnar body at all. In an electron emission element, as the electron emission efficiency is decided by the configuration of the pointed top portion, no motivation for devising the shape of columnar body is disclosed or suggested in JP P2002-075171.

Application No.: 10/661,591

Accordingly, JP2002-075171 fails to identically disclose or suggest every element of the present claimed subject matter

Moreover, in an electron emission element, such as JP2002-075171, since the process of sharpening the top portion is involved, the size of element is inevitably too small to adjust the sectional shape as in the present invention.

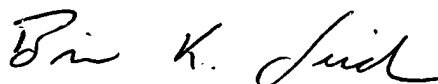
Accordingly, for the reasons set forth above, the rejection under 35 U.S.C. § 102 is not legally valid and should be withdrawn.

It is believed that the pending claims are now in condition for allowance. Applicants therefore respectfully request an early and favorable reconsideration and allowance of this application. If there are any outstanding issues which might be resolved by an interview or an Examiner's amendment, the Examiner is invited to call Applicants' representative at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

McDERMOTT WILL & EMERY LLP



Brian K. Seidleck
Registration No. 51,321

600 13th Street, N.W.
Washington, DC 20005-3096
Phone: 202.756.8000 BKS:idw
Facsimile: 202.756.8087
Date: March 20, 2006

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